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LIV.—*New Ants from Australia.*

By W. C. CRAWLEY, B.A., F.E.S., F.R.M.S.

THIS paper deals, with one or two exceptions, with ants collected by Mr. J. Clark in Western Australia, principally in the Perth district. In addition to new species, races, and varieties, we have been able, thanks to Mr. Clark's very thorough collecting, to add descriptions of many males and females of species the workers of which were hitherto only known.

Opportunity has been taken to re-describe some of F. Smith's much discussed types, as a good deal of misapprehension has existed among foreign myrmecologists who have been unable to see the types themselves.

I am indebted to my friend, Professor Carlo Emery, for his unfailing kindness in giving me the benefit of his knowledge in doubtful cases.

*List of Species.*

Subfam. Ponerinæ.

*Myrmecia vindex*, Sm.—— *LUTEA*, sp. n.—— *harderi*, For., race *SWALEI*, st. n.—— *nigriscapa*, Roger.—— *chasei*, For., var. *LUDLOWI*, nov.—— *CLARKI*, sp. n.—— (*Pristomyrmecia*) *mandibularis*, Sm.—— (——) *michaelseni*, For., var. *PERTHENSIS*, nov.*Amblyopone michaelseni*, For.—— *australe*, Erichs.*Phyracaces* *CLARKI*, sp. n.*Rhytidoponera punctata*, Sm.—— *convexa*, Mayr, race *violacea*, For., var. *SUBUMBRATA*, nov.—— (*Chaleoponera*) *metallica*, Sm.—— (——) ——, var. *INORNATA*, nov.—— (——) ——, var. *VARIANS*, nov.—— (——) *aspera*, Roger. ♂ ♀ hitherto undescribed.

- Euponera* (*Brachyponera*) *lutea*, Mayr. ♂ ♀ ♀.  
*Leptogenys* (*Lobopelta*) *neutralis*, For. ♀ hitherto undescribed.  
*Diacamma australe*, F.  
*Odontomachus coriarius*, Mayr, var. *OBSCURA*, nov.

## Subfam. MYRMICINÆ.

- Podomyrma* *NUDA*, sp. n.  
*Meranoplus hirsutus*, Mayr, race *RUGOSA*, st. n.  
 — *FERRUGINEUS*, sp. n.  
 — *HILLI*, sp. n.  
*Monomorium OCCIDANEUS*, sp. n.  
*Cardiocondyla nuda*, Mayr. ♀ ♀.  
*Solenopsis CLARKI*, sp. n.  
*Aphænogaster POULTONI*, sp. n.  
*Crematogaster PERTHENSIS*, sp. n.  
 — *rufotestacea*, Mayr. ♂ ♀ hitherto undescribed.  
 — *leviceps*, Mayr, var. *chasei*, For.  
*Pheidole megacephala*, F.  
 — *dolichocephala*, And.  
 — *ampla*, For., race *PERTHENSIS*, st. n.  
 — *impressiceps*, Mayr.  
 — (*Anisopheidole*) *froggatti*, For.

## Subfam. DOLICHODERINÆ.

- Dolichoderus* (*Hypoclinea*) *upsilon*, For.  
 — (—) —, var. *NIGRA*, nov.  
*Iridomyrmex conifer*, For. ♂ hitherto undescribed.  
 — *detectus*, Sm.  
 — *discors*, For.  
 — *rufoniger*, Lowne.  
 — —, race *suchieri*, For.  
 — *itinerans*, Lowne, race *nitidiceps*, And.  
 — *gracilis*, Lowne.  
 — *innocens*, For.  
 — *glaber*, Mayr.  
 — *ersanguis*, For. ♂ hitherto undescribed.  
*Bothriomyrmex FLAVUS*, sp. n. ♂ ♀ ♀.  
 — *SCISSOR*, sp. n. ♀.

## Subfam. CAMPONOTINÆ.

- Melophorus fieldi*, For.  
*Prenolepis obscura*, Mayr. Typical form.  
*Acantholepis* (*Stigmatoceros*) *OCCIDENTALIS*, sp. n.  
*Camponotus* (*Myrmocamelus*) *ephippium*, Sm., race *narses*, For.  
 — (—) *cinereus*, Mayr, race *nottereæ*, For.  
 — (*Myrmosaga*) *chaleus*, Crawley. ♂ ♀ ♀.  
 — (*Dinomyrmex*) *doryceus*, Sm., race *coxalis*, Sm.  
 — (*Myrmophyma*) *testaceipes*, Sm.  
 — (—) *claripes*, Mayr, race *elegans*, For.  
 — (—) —, race *MINIMA*, st. n.  
 — (—) *lownei*, For. ♂ ♀ hitherto undescribed.  
 — (*Myrmogonia*) *TUMIDUS*, sp. n.  
 — (*Myrmosphincta*) *molossus*, For.  
 — (*Myrmoturba*) *nigriceps*, Sm., race *obniger*, For., var. *prostans*, For.  
 — (—) —, race *dimidiata*, Roger, var. *perthiana*, For. ♂ ♀ hitherto undescribed.  
*Polyrhachis* (*HagioNyrrma*) *ammonæides*, For.  
 — (—) *ammon*, F.  
 — (*Campomyrma*) *siduica*, Mayr, var. *PERTHENSIS*, nov.

*Myrmecia LUTEA*, sp. n.

♂. Length 15–20 mm. (without mandibles); length of mandibles in largest specimens 3.9 mm.

Antennæ, thorax, legs, and petiole obscure yellow-ochre in colour; mandibles, except teeth which are tipped with black, a brighter yellow. Head dark chocolate-brown, sometimes nearly black; gaster black or, at least, very dark brown.

Very slender, similar in form to *gracilis*, Em. Head small, narrowing considerably behind eyes, smaller and with more rounded angles than in *nigriceps*, Mayr (which it resembles somewhat in colour). The head is narrower behind than in either *vindex* or *nigriceps*, even in the largest ♂♂, where in all three forms the head is more massive proportionately.

The first node in largest ♂♂ is longer than the stalk, in the smaller about equal. Underneath in front is a small tooth\*.

Head longitudinally rugose, but beyond the level of eyes the rugæ have numerous cross-lines, and the sculpture becomes almost reticulate-punctate. The sculpture of the head is much more superficial than in *nigriceps*. Sculpture of pronotum also much more superficial than in *nigriceps*; that of the mesonotum variable, in most specimens it is transversely striated, but in one or two from the same colony the striation is longitudinal, and in others the segment is almost smooth.

Indlow, W. Australia (*Clark*, nos. 2 and 5).

Type W. C. C. coll.

Intermediate between *gracilis* and *nigriceps*.

The ants of the genus *Myrmecia*, sometimes called "Bulldog" ants, are also known as "Jumpers." Mr. Clark has found that some species can leap a distance of three or four inches.

*Myrmecia harderi*, For., race SWALEI, st. n.

♂. Length (without mandibles) 9.0 mm.; length of mandibles 1.3 mm.

Deep black; mandibles yellow, tinged with brown along their apical half. Thorax and petiole light red, legs dark brown, tarsi lighter. Antennæ missing, except the nine terminal joints of the left funiculus, which are dark brown. Postpetiole and gaster with a faint blue metallic sheen. Body and legs with a fine pale pilosity, most abundant on

\* In *vindex* and *nigriceps* the first node is conspicuously longer than the stalk in all sizes of the ♂. In *lutea* this node in profile arises rather more abruptly, and is less evenly rounded above than in *vindex*.

petiole and gaster, postpetiole and gaster in addition have a moderately close grey pubescence.

Mandibles slender, their outer border barely concave, inner border with two large teeth besides the apical tooth; between the latter and the first large tooth are two small ones; between first and second large teeth are three small ones, and behind the second large tooth are 4-5 irregular teeth. Head broader than long, broadest in front, occipital border nearly straight. Clypeus widely excavated. Funicular joints, as far as can be ascertained, diminish in length up to the 9th joint, then increase in length slightly. Eyes large, almost touching base of mandibles. Ocelli distinct, flat. Thorax short and broad, hardly narrowing at all behind the pronotum; in profile regularly curved, highest at commencement of epinotum; pronotum somewhat depressed; a slight incision between meso- and epinotum. The latter forms a wide rounded angle between its two faces, the base being longer than the declivity. Legs short. Petiole from above as broad as long, wider behind, where the angles are more rounded than in front; in profile cubic, with parallel sides, the stalk very short and thick. Postpetiole about twice as wide as the petiole, campaniform, wider than long, widest just beyond the middle; a projection extends on its under surface beneath the petiole.

Mandibles smooth and shining, with 4-5 punctures along the line of teeth. Head longitudinally coarsely rugose, the rugæ becoming broken as they approach the occiput. Thorax more coarsely rugose; on the pronotum the rugæ are deep, regular, and longitudinal, spreading slightly from the front outwards; on the mesonotum they are longitudinal, but not quite so regular; on the first half of base of epinotum they are longitudinal, and on the remainder and on the declivity they are transverse. The petiole is longitudinally rugose above and transversely behind. Postpetiole and gaster have a fine reticulate ground-sculpture; between the rugæ on the head there is also a ground-sculpture.

A single ♀ from Albany, received from the late Dr. H. Swale.

Type W. C. C. coll.

Slightly smaller than *harderi*, For., and considerably smaller than *pilosula*, Sm., and its race *mediorubra*, For. From the two latter it differs by the much coarser sculpture and the narrower and straighter mandibles. It differs from *harderi* in having the postpetiole (or second node) only finely reticulate instead of coarsely rugose. The thorax is also stouter, and the head, postpetiole, and gaster of a deeper

black colour. The terminal joints of the funiculus are distinctly shorter than in *pilosula*.

*Myrmecia chasei*, For., var. LUDLOWI, nov.

♂. Agrees with Forel's description of *chasei* with the following differences:—Some specimens slightly smaller. Mandibles 3.5 mm. long, somewhat longer than the head (as long as head in type). Shoulders of pronotum apparently not so pronounced. Clypeus widely but not deeply emarginate. First node once and a half as broad as long (almost twice as broad as long in type), second node twice as broad as long (two and a half times as broad as long in type). Head densely reticulate between the rugæ, but on the thorax and first node the space between the rugæ is more or less smooth and shining. The neck of the pronotum is transversely striate, the rest longitudinally, the striæ slightly diverging in the direction of the base of the segment; the second node is irregularly longitudinally rugose. There is a prominent central ridge on the first node.

Colour similar, but there is a black patch on the lower half of the mesosternum, and a small one on the metasternum.

The mandibles in their complete form have the typical long curved apical tooth of *Myrmecia*, sensu stricto, but in all the series, except two specimens, this tooth is completely worn away, leaving the mandibles with an oblique point.

Ludlow, W.A. (*Clark*, no. 12).

Type W. C. C. coll.

This ant builds a cone-shaped earth-mound about one foot in height, with an entrance on the top about two inches in diameter, but there are also other entrances in the ground beyond the mound. It is an active and fierce insect.

*Myrmecia michaelsoni*, For., var. PERTHENSIS, nov.

♂. Length 10 mm. (without mandibles); mandibles 2.5 mm. Differs from the type as below:—

*michaelsoni*.

Black; point of mandibles and funiculus, and tarsi brown.

Scape does not reach occiput. First joint of funiculus equals second.

Second node almost twice and a half as broad as the first.

var. *perthensis*.

Dark brown; mandibles, antennæ and legs red-brown; thorax and first node sometimes red-brown; second node red-brown.

Scape exactly reaches the occipital border at its centre. First joint slightly shorter than the second.

Second node not quite twice as broad as first.

Sculpture similar to that of the type; the rugæ on the head are fairly rugular and coarse, on the pro- and mesonotum they are regular but finer; the epinotum is exactly as in *michaelseni*; the first node is more coarsely rugose than the head. The rest as in *michaelseni*, including the deep golden pelisse on gaster.

Perth (*Clark*, no. 65).

Type W. C. C. coll.

I have not seen a specimen of *michaelseni*, but have made the comparison with Forel's very complete description.

*Myrmecia* CLARKI, sp. n.

♂. Length (without mandibles) 9·8–10 mm.; length of mandible 2·4 mm.

Black; mandibles and tarsi dark yellow, antennæ nearly black.

A few hairs on mandibles, clypeus, and apex of gaster, the latter with a very thin grey pubescence.

Mandibles considerably longer than head, narrow, the outer edge feebly concave, the point long and curved, followed by three large teeth with two smaller between each pair, the remaining half of the mandible bears a ridge of 6–8 small teeth directed backwards. Eyes large, occupying more than half the sides, and almost touching the base of mandibles. Scape passes the occiput by about its width. Joint 2 of funiculus once and a half as long as first, the third as long as first, the remainder diminishing in length to the apical, which is slightly longer than the preceding. The whole antenna thinner than in *pilosula*. Head broader than long, slightly narrowed behind, the occipital border feebly concave. Clypeus incised in centre of anterior border, but not depressed up the centre as in *pilosula*.

Thorax similar to that of *pilosula*, but the mesonotum shorter and broader proportionately. Epinotum in profile rather more convex than in *pilosula*. First node from above as broad as long, broader than in *pilosula*; in profile it is higher behind. Second node once and a half as broad as the first.

Mandibles with scattered small punctures, and a few elongated ones near the apex. Whole of head regularly and finely striate longitudinally. Pronotum with coarser regular ridges, encircling the neck and sides, longitudinal on top. Mesonotum and base of epinotum similarly longitudinally striate, declivity transversely striate. First node coarsely longitudinally rugose; second and gaster microscopically reticulate. There is a similar reticulate ground-sculpture on the whole body.

Mundaring Weir, W.A. (Clark, no. 112).

Type W. C. C. coll.

*Pilosula* group, and differs from *pilosula* principally in colour of mandibles and antennæ, and thinner and longer mandibles, narrower occiput, and in the shape of the thorax and nodes. The ♀ pupa measures 11·0 mm.

*Phyracaces* CLARKI, sp. n.

Length 6·5 mm.

Uniform dark castaneous, with some indistinct dark smudges on second segment of gaster.

External border of mandibles concave. Head slightly broader than long, broadest at eyes, narrowest in front, occipital border concave with somewhat sharp lateral angles. Frontal carinæ similar to those of *singularis* as described by Forel, the narrow posterior prolongation reaching to beyond the middle of the eyes, which are prominent and situated slightly behind the middle of sides of head. Carinæ of cheeks prominent, the posterior portion concave, the anterior portion convex, terminating at the side in a tooth-like angle. The carina is bordered by a ridge which, seen from the side, forms a rectangular enclosure not quite touching the base of the mandibles and then almost completely encircling the eye. A ridge also commences below the base of the mandible, and forms the lateral and posterior border of the head. The scapes do not quite reach the posterior third of head, the terminal joint of funiculus equals the preceding two. All joints, except the second and the last two, are as broad as, or broader than, long.

Thorax narrower than head, not quite twice as long as broad at pronotum, where it is a fraction broader than at epinotum. Pronotum broader than long, broadest just behind the shoulders which are sharply angled; the anterior border straight, the posterior concave, limited by a suture which in some specimens is quite distinct, in others only indicated; mesonotum broader than long, bounded behind by traces of a suture which is practically straight. Base of epinotum similarly shaped to pronotum but inverted, and is broadest at the extreme border instead of just in front. Declivity of epinotum broad, concave from top to bottom and slightly convex from side to side, as long as, or a fraction longer than, the base, a sharp carina dividing the two. Lateral and anterior borders of pronotum, and lateral borders of epinotum, with a sharp carina. Petiole once and a half as broad as long, broader behind than in front (in *singularis* the node is broader in front), widely concave in front, its sharply marginate sides produced into broad flat teeth behind;

underneath with a small sharp tooth. Postpetiole broader than the petiole, and broader than long, broadest at its sharply marginate anterior two-thirds of the sides, narrowing abruptly behind the marginate portion; on the side is a long concavity similar to that in *singularis*. A deep constriction between the postpetiole and first segment of gaster, which are approximately equal in breadth. Pygidium truncate.

Mandibles closely and coarsely punctured. Head with a few shallow irregular punctures on the vertex and occiput; petiole and postpetiole densely and finely punctured. First segment of gaster with a few piligerous points. In addition the whole body has a fine reticulate ground-sculpture.

Scattered erect hairs on head, mandibles, legs, and antennæ; thorax almost bare except for a row along the carina between the two divisions of the epinotum; petiole, postpetiole, and gaster covered with long stiff hairs, slightly lighter in colour than the body; a thin adherent pubescence on petiole and postpetiole.

Darlington, W. Australia (*Clark*, no. 9). Small colony under stone.

Type W. C. C. coll.

*Leptogenys (Lobopelta) neutralis*, For. ♂ ♀.

♀ (hitherto undescribed). Length 7.0 mm.

Larger and more robust than the ♂. Head as broad as long (longer than broad in ♂). Thorax similar to that of the ♂, but mesonotum longer; metanotum distinct; epinotum shorter, forming a regular curve, the base shorter than the declivity (the reverse is the case in the ♂). Petiole different; from above the node is shorter than broad, twice as wide behind as in front, the posterior border straight or feebly concave (in the ♂ the node is longer than broad); in profile it is straight in front and behind, somewhat higher behind; the posterior face plane. Mandibles similar, with a long apical tooth and three exceedingly small teeth along the masticatory border. Gaster very large, nearly half the length of the total body.

Black, shining; mandibles, articulations of antennæ, end of scape and the whole funiculus, the tarsi, the articulations of the legs, and the apex of gaster castaneous.

Mundaring Weir, W. Australia (*Clark*, nos. 13, 41).

Type in W. C. C. coll.

*Rhytidoponera convexa*, Mayr, race *violacea*, For.,  
var. *SUBUMBRATA*, NOV.

♂. Entirely dark russet-brown, the gaster sometimes



faintly metallic, but otherwise entirely without the metallic green, blue, or red of *violacea*. Gaster less shining than in *violacea*.

The posterior angles of head are somewhat less rounded, and the sculpture of the pronotum rather coarser, and the first segment of gaster distinctly more finely striated than in the type.

Townsville and Magnetic Island (*Hill*, nos. 152, 71, 77).

Type W. C. C. coll.

Mayr says of *convexa*: "Mandibulæ . . . . . margine masticatorio acuto, haud dentato, partim indistincte crenulato." Both *violacea* and var. *subumbrata* have two or three very distinct but small teeth, the spaces between them and the rest of the border bearing distinct though minute teeth.

*Rhytidoponera (Chalcoponera) aspera*, Roger.

♀ (hitherto undescribed). Length 9 mm.

Colour like the ♂, but the red is rather more predominant over the metallic green than in the ♂.

Head somewhat broader and eyes are larger than in ♂. Scape not so long proportionately. The sculpture on scutellum and scutum tends to become longitudinally rugose. Otherwise like the ♂.

Wings pale brown and iridescent.

♂ (hitherto undescribed). Length 7.5 mm.

Head and thorax black without metallic sheen, petiole and gaster red-brown, legs and antennæ and apex of mandibles castaneous.

Mandibles triangular, with a large terminal and numerous small teeth. Antennæ long, reaching beyond base of gaster. The scapes do not quite reach the back of eyes; the scape is three to four times as long as the first joint of funiculus, which is broader than long; second joint the longest, slightly longer than the apical, the joints gradually diminishing to the apical, and all of them very long and cylindrical. Eyes large, placed obliquely in centre of sides. Clypeus raised in centre and depressed along the anterior border, which is convex.

Head longer than broad, narrow in front. Occipital border slightly concave.

Thorax narrower than head, depressed in centre, Mayrian and parapsidal furrows distinct. Declivity of epinotum plane.

Node from above more than twice as long as broad, the sides concave anteriorly. In profile it is depressed an-

teriorly and raised posteriorly; underneath is a sharp vertical spine, small.

Gaster long and narrow, the second segment longer than the first, and constricted between.

Wings as in ♀.

Shining. Mandibles striate; head, including clypeus, coarsely reticulate-punctate. Scutum less coarsely so; the Mayrian furrows are marked out by broad transverse shining grooves. Rest of thorax and the node coarsely reticulate-punctate, the declivity of epinotum transversely rugose. First segment of gaster faintly reticulate with a few irregular longitudinal lines, second segment more finely reticulate.

Stipites long and thin, completely encircling the rest of the genitalia.

Victoria, no. 110 (*H. M. Giles*, 1905).

Types W. C. C. coll.

*Rhytidoponera (Chalcoponera) metallica*, Sm.,  
var. VARIANS, NOV.

♂. Length 4.5 mm.

Rather smaller than the smallest ♂ of *metallica*. Head longer and narrower, hardly wider behind than in front, sides feebly convex. Thorax less robust; node of pedicel somewhat more pointed in front. Scapes extend a little more beyond the occiput. The occiput has a feeble carina, broken in the middle, along its upper border.

Sculpture similar, except on gaster, of which the first segment is covered with transverse striæ interspersed with punctures which are larger and more numerous than is usual in the type.

The colour varies from a yellow-brown (palest on thorax), in the majority of specimens, to a metallic green on top of head and thorax and on nearly the whole of gaster. This metallic colour never reaches the depth and brilliance seen in typical specimens of *metallica*, and there is no trace of purple.

Darlington, West Australia (*Clark*, no. 40).

Type in W. C. C. coll.

According to Emery, this var. resembles the var. *crisulata*, For. (which I have not seen), in the shape of the occiput, but the sculpture of the gaster is quite distinct.

*Rhytidoponera (Chalcoponera) metallica*, Sm.,  
var. INORNATA, NOV.

♂. Differs from the preceding in being of a uniform

dark yellow-brown, with no sign of metallic sheen, and in the following points :—

The head is shorter and broader behind. The node of the petiole is distinctly less pointed in front (when seen from above). The sculpture of the gaster is distinct; the first segment is coarsely and evenly semicircularly striate, the striæ forming a narrow arch in the centre near the apex of the segment. The segment has no punctures, but there is a slight emargination or notch in the apical border, which is present in all the specimens examined. The second segment is similarly striate, with a similar arching of the striæ, but the striæ are much finer than in the first segment. (In var. *varians* the second segment is much more finely and transversely striate, with no arching, and is punctured in addition.)

All the thirty-five specimens examined conform to the above description.

Perth, W. Australia (Clark, no. 31).

Type in W. C. C. coll.

Though hesitating to add to the varieties of such a variable species as *metallica*, I have thought it best to do so, as neither Prof. Emery nor myself could make these two forms agree with any of the published varieties.

*Odontomachus coriarius*, Mayr, var. *OBSCURA*, NOV.  
(Fig. 1\*.)

♂. Length 11.5 mm. (without mandibles); mandibles 2.0 mm.

Differs from typical *coriarius* as follows :—

*coriarius*. (Fig. 2.)

(Specimen from Godeffroy Mus.)

var. *obscura*.

Scapes do not quite reach occiput.

Scapes pass occiput by about half their breadth.

Occipital groove deep and broad.

Occipital groove less deep and narrower.

Striation of head very even and distinct under  $\times 10$  magnification.

Striation of head very fine, not distinct under  $\times 10$ .

Pronotum evenly transversely striate.

Striation in centre of pronotum oval, with the long diameter of the oval across the segment. The whole of thorax more finely sculptured than in *coriarius*.

Base of first segment of gaster longitudinally reticulate-striate; whole of second segment reticulate with several points.

First and second segments only very superficially reticulate.

\* The names used in reference to the three teeth are:—*apical* tooth for the terminal, *subapical* for the smaller one following it, and *preapical* for the large broad tooth forming the innermost of the three.

In addition, the new variety is uniformly darker in colour than typical *coriarius* (Clark, no. 10).

Type W. C. C. coll.

Mayr originally described *coriarius* as a species, but later authors have considered it a race of *ruficeps*. It should rank as a species for the following reasons:—There has been a certain amount of confusion among authors, owing to the brevity of Smith's description of *ruficeps*. I have recently examined the type, of which I give a description below, and there is no doubt that Smith's description has led to errors. The shape of the head is quite unlike that of *coriarius*, being somewhat long and only slightly wider in front than behind. Further, the preapical tooth is nearly

Fig. 2.

Fig. 1.

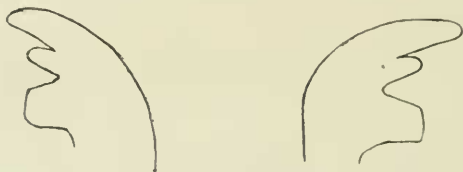


Fig. 1.—Mandible of *O. coriarius*, var. *obscura*, nov.

Fig. 2.—Mandible of *O. coriarius*, Mayr.

as long as the apical, and is not sharply truncate, as in *coriarius* (*vide* fig. 2). Smith in his description says the teeth are "stout and blunt," which hardly conveys the appearance of the teeth in the type. In fact, Forel, relying on these words, has described a race of *ruficeps*, which he called *acutidens* (Ann. Soc. Ent. Belg. xlv. p. 56, 1900). As a further result of the examination of Smith's type and the discovery of a ♂ major of *acutidens*, the latter will have to rank as a species.

#### *Odontomachus ruficeps*, Smith. (Fig. 3.)

Type (British Museum).

♂. Length (without mandibles) 12·8 mm.; mandibles 2·2 mm. Length of head 3·7 mm.; width of eyes 2·8 mm.; width at occiput 2·1 mm.

Colour ferruginous.

Mandibles toothed along inner border with 9–10 small teeth. Apical tooth slightly longer than preapical (*vide* fig. 3).

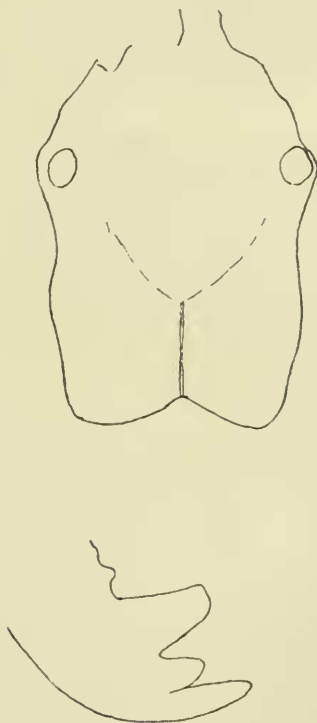
Head not greatly wider in front than behind.

Spine of node slightly curved backwards. Node in profile straight in front, rounded behind.

Whole of head above and below, including the fossæ, finely striated right up to the occiput. The occipital groove extends from the edge of the depression to the occiput, deep.

The striae on top of pronotum in front are spiral, on the hinder part they are transverse. On the rest of thorax they are transverse, much coarser on the base of epinotum. The declivity has a few coarse transverse striae.

Fig. 3.



Head and end of mandible of *Odontomachus rugiceps*, Sm., type.

Back of node quite smooth, the front has transverse striae.

Gaster microscopically reticulate.

Forel's race *acutidens* (*l.c.* and *Ann. & Mag. Nat Hist.* ser. 9, vol. vii. p. 90, 1921) varies in length from 7.5 to 10.0 mm. or more, the largest ♀ almost deserving the name of "soldier."

The following table, giving the comparative dimensions of the heads of these five forms, shows at a glance how they are related (that of *coriarius* is taken from an example kindly given me by Emery, and came from the Godeffroy Museum):—

|                    | <i>ruficeps</i> , type. | <i>septentrionalis</i> ,<br>co-type. (Fig. 4.) | <i>coriarius</i> . | var. <i>obscura</i> . |
|--------------------|-------------------------|--|--------------------|-----------------------|
| Length.....        | 3.7 mm.                 | 3.9 mm.  | 3.3 mm.            | 3.4 mm.               |
| Width at eyes....  | 2.8 "                   | 2.7 "  | 2.5 "              | 2.5 "                 |
| Width at occiput . | 2.1 "                   | 2.0 "  | 2.0 "              | 2.0 "                 |

|                    |         | <i>acutidens</i> . (Fig. 5.) | <i>cephalotes</i> , Sm.,<br>type. (Fig. 6.) |         |
|--------------------|---------|------------------------------|---|---------|
| Length.....        | ♀ major | 3.3 mm.                      | ♀ minor 2.2 mm.                             | 3.3 mm. |
| Width at eyes....  | "       | 2.7 "                        | " 1.7 "                                     | 2.5 "   |
| Width at occiput . | "       | 2.1 "                        | " 1.2 "                                     | 1.9 "   |

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 4.—Mandible of *O. septentrionalis*, Craw.Fig. 5.—Mandible of *O. acutidens*, For.Fig. 6.—Mandible of *O. cephalotes*, Sm., type.

It will be seen from the above measurements that *ruficeps* and *septentrionalis* approximate very closely in the shape of the head, that of *septentrionalis* being very slightly longer and narrower. In fact, the only difference between the two forms, apart from this, lies in the shape of the mandibular teeth. The dimensions of the heads of *coriarius* and its var. *obscura* are almost identical.

*O. coriarius*, therefore, should rank as a species distinct from *ruficeps*, while *septentrionalis* can only be considered a var. of *ruficeps*. On the other hand, *acutidens* differs from the others in having a shorter and proportionately broader head, and also in possessing two forms of ♀, and should rank as a distinct species.

Emery has seen the var. *obscura* and *septentrionalis*, and agrees with me that *ruficeps* must be considered as a species distinct from *coriarius*, *cephalotes*, *ajax*, and *acutidens*.

*O. cephalotes*, Sm., as shown by the measurements of the head and the shape of the mandibular teeth, comes in the *coriarius* group. Below is a description of the type (Oxford) from Ceram :—

♂. Length (without mandibles) 11·3 mm. ; length of mandibles 1·7 mm.

Head as above. Mandibles broad, distinctly but irregularly denticulate along inner border (Smith says "no teeth"), apex with three teeth (*vide* fig. 6). Clypeus prolonged in a blunt point between the frontal carinæ. Antennal scapes barely extend beyond occipital border. Occipital groove extends to end of antennal fossæ, deepest anteriorly. Thorax slightly emarginate between meso- and epinotum. Node broad at base, narrowing gradually to the spine, which is rather short and thick.

Mandibles with one or two indistinct punctures near the apical tooth, very faintly and irregularly striate along their outer half. Whole of upper surface and sides of head finely and regularly striate, the striæ coarser in front and spreading fan-wise from the frontal carinæ to the base of eyes, and diverging slightly on the vertex.

Pronotum finely striate transversely, anteriorly some of the striæ form concentric ovals (this cannot be seen from above, but only from the sides); mesonotum with feeble striæ, arched anteriorly; epinotum regularly and transversely striate.

Node encircled with fine striæ.

Entire gaster finely and longitudinally striate, and finely reticulate at the base of each segment. On the first segment the lateral striæ encircle the basal half of the segment, so that this half, viewed from in front, appears to be transversely striate.

A few outstanding hairs on pronotum and gaster, particularly on the apical segments. Pubescence very scanty.

Dark ferruginous, almost fuscous; mandibles, antennæ, and legs paler, gaster darkest.

One of the co-types from Ceram is paler.

*Podomyrma NUDA*, sp. n. (Fig. 7.)

♂. Length 5·5 mm.

Dark red-brown; femora, tibiæ, and gaster dark brown. A few scattered yellow hairs on body, tibiæ, and scapes with a few erect hairs. Pubescence nil.

Head very slightly longer than broad, somewhat wider behind where the occiput is feebly concave, the sides slightly

convex, the occipital angles broadly rounded. Mandibles thick, with two large apical teeth followed by three or four smaller ones. Anterior half of clypeus flat, depressed along the anterior border, which is straight. Frontal carinæ feebly dilated at the insertions of the antennæ, about one-third as long as the scape. A ridge continues them to the vertex. The space between the eyes and the frontal carinæ is slightly raised, so as to give the impression of an antennal scrobe at each side, though a definite scrobe does not exist. The scapes fail to reach the occiput by over twice their greatest

Fig. 7.



A.



B.

*Podomyrma nuda*, sp. n.

A. Thorax and petiole.

B. Dorsum of thorax.

diameter. The apical joint of the club, which is very distinctly 3-jointed, is almost as long as the two others together. Joints 2-6 of funiculus subequal, slightly longer than broad, the fifth and sixth somewhat thickened, the seventh still more so and longer.

Pronotum broader than long, the sides convex posteriorly, then becoming concave towards the anterior angles, which are triangular, but not, strictly speaking, dentate. Promesonotal suture indicated by a slight break in the sculpture. The mesonotum a little below the halfway line has a blunt projection on each side directed forwards.



MesoePINOTAL constriction deep. Base of epinotum, which is nearly twice as long as the declivity, is in profile rounded as it rises from the suture, then flat for the rest of its length. Declivity concave, separated from the base by a transverse ridge ending in a point on either side. First joint of pedicel from above longer than broad, the sides parallel, the node ending in front in a blunt point; in profile the joint is divided into two halves by the point, in front of this point it is concave, beyond plane. Underneath is a blunt tooth directed forwards. Second joint once and a half as wide as first, broader than long, with convex sides, in profile it is higher behind, where it is rounded and higher than first joint. Underneath in front is a blunt tooth.

Femora very swollen. Gaster ovate.

Back of head and thorax shining; front of head and gaster mat. Mandibles closely striate. Clypeus sub-mat, with two or three strong ridges at the sides and some indistinct ones in between. Head closely and evenly longitudinally striate. On the cheeks the striæ tend to become coarse reticulations. There is a reticulate ground-sculpture between the striæ, except on the vertex and occiput, which are shining between the striæ. Promesonotum coarsely longitudinally rugose and shining, likewise the sides. First half of base of epinotum irregularly transversely rugose, second half regularly so. Declivity shining. First node irregularly rugose, second evenly longitudinally rugose. Base of gaster with fine, longitudinal, short striæ, the rest superficially reticulate.

1 ♂. Murray River (Clark, no. 150).

Type W. C. C. coll.

Comes near *inermis*, Mayr, differing in size and colour and some small structural details, and also in the sculpture. According to Forel's description, it also comes near *oda*, which I have not seen.

*Meranoplus hirsutus*, Mayr, race *RUGOSA*, st. n.

♂. Length 2.8 mm.

Comes near the race *minor*, Forel, from which it differs chiefly in the shape of the thorax.

Entirely castaneous, petiole somewhat darker, teeth of mandibles and eyes black.

Mandibles with four teeth. Head broader than in *minor* and proportionately broader behind.

Promesonotum broad, much broader behind than in

*minor*; the lateral spines are connected almost to their points with a translucent border; the mesonotal spines are subequal, pointed, not truncate at their ends as in *minor*. The epinotal spines are long and pointed, but rather thicker than in either *hirsutus* or race *minor*. First node rather higher than second, otherwise similar to that of *hirsutus*. Second node in profile somewhat shorter and more abruptly descending at the posterior border than in *hirsutus*, and seen from above it is slightly shorter.

Pilosity abundant, but rather shorter than in type or race *minor*.

Mandibles striate. Head and thorax, instead of being coarsely reticulate, are coarsely longitudinally rugose, the rugæ being connected here and there by transverse bars. Petiole coarsely reticulate-rugose. Base of gaster longitudinally rugose like the thorax, but not so coarsely. In the type it is finely reticulate, and in race *minor* smooth and shining.

Parkerville, W.A. (*J. Clark*, no. 29).

Type W. C. C. coll.

*Meranoplus* FERRUGINEUS, sp. n. (Fig. 8.)

♀. Length 2·8–3·0 mm.

Entirely ferruginous; teeth of mandibles dark brown.

Whole body abundantly provided with a moderately long golden-brown pilosity.

Fig. 8.



*Meranoplus ferrugineus*, sp. n.

Mandibles with four teeth. Head about as long as broad, broadest at occiput, where it is slightly concave. Eyes behind the middle of sides of head. Centre of clypeus concave from side to side, the anterior border widely emarginate.

Thorax in shape not unlike the preceding, with similar triangular teeth at the shoulders of pronotum, but the spines are shorter. It is broader than long, not greatly wider in front than behind, the spines are subequal, the lateral pairs joined by a translucent border. The posterior central pair are slightly shorter than the outer ones. Epinotal spines long and thin.

Both nodes in profile subquadrate; from above the first is subquadrate, the second nearly  $1\frac{1}{2}$  as broad, broadest and almost straight in front, narrowing in an even curve behind, the whole being not unlike a half-moon with the points rounded. Gaster of ordinary form.

Mandibles striate. Clypeus smooth and shining in centre, striate at sides. Frontal area smooth and shining. Front half of head with irregular longitudinal ridges, shining in between, merging as the front is reached into coarse reticulation, until at the occiput the sculpture consists of more or less hexagonal pits, shining at the bottom.

On the promesonotum the process is reversed, the pits being in front and the ridges behind. The petiole is similarly pitted.

Gaster smooth and shining, but superficially reticulate.

Serpentine River, W.A. (*J. Clark*, no. 35).

Type W. C. C. coll.

CHANGE OF NAME.—*Meranoplus minor*, Crawley (1918), cannot stand, as there is already a *M. hirsutus*, race *minor*, Forel (1902). I therefore propose the name *M. minimus* for the former.

*Meranoplus* HILLI, sp. n. (Fig. 9.)

♂. Length 2.8 mm.

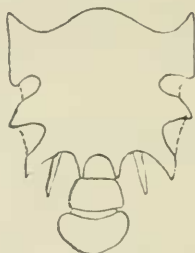
Entirely ferruginous.

Head as long as broad, widest behind, slightly narrowing in front, less so than in *ferrugineus*, posterior border concave. Front portion of clypeus slightly concave, the anterior border almost straight. Mandibles with four teeth. Frontal carinae slightly curving in at level of eyes, which are well behind the middle of head. Antennal scape swollen beyond middle; club of funiculus longer than the rest of the funiculus.

Promesonotum considerably broader than long, broadest in front. Shoulders of pronotum terminated by large triangular teeth, the sides parallel, with a blunt dentiform

process equal and opposite to the pronotal teeth, scooped out at base leading to the mesonotum, the interval covered with a translucent membrane. The mesonotum has three pairs of teeth, the anterior lateral ones broad, the posterior lateral ones longer and pointed, the central pair short and pointed. A translucent membrane covers the excavated space between. Epinotum broad and flat, bearing a pair of long pointed spines, nearly as long as their interval, and directed slightly outwards. First node in profile twice as high as thick, a fraction higher in front than behind, straight in front, slightly concave behind, making the base broader than the apex. From above it is broader than long, straight in front, roughly convex behind. Second node in profile as high as first, and thicker from above, broader than first, concave in front, convex behind.

Fig. 9.

*Meranoplus hilli*, sp. n.

Gaster of normal form.

Body moderately provided with a short brown pilosity, much less abundant than in *ferrugineus*.

More or less shining, gaster sub-mat. Mandibles striate. Clypeus smooth and shining with a few striae on sides and on anterior portion. Front half of head has longitudinal ridges, which gradually become coarse reticulations until at the occiput the surface is merely coarsely reticulate. Sculpture of thorax similar to that on the occiput, sides longitudinally striate. Epinotum with a few longitudinal striae. Both nodes coarsely reticulate-punctate. The bottom of the punctures and areas enclosed by the reticulation are shining.

Gaster entirely microscopically reticulate and sub-mat.

Similar to *ferrugineus*, from which it differs principally in shape of head and in sculpture, and in pilosity.

Seaford, Victoria (*W. Hill*, no. 84).

Type W. C. C. coll.

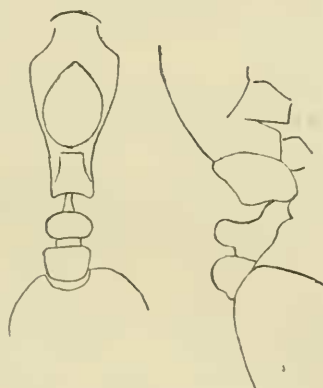
*Monomorium* OCCIDANEUS, sp. n. (Fig. 10.)

♂. Length 2.0 mm.

Pale yellow, thorax and legs palest, gaster castaneous. Teeth of mandibles brown. Body sparsely provided with yellow hairs.

Head almost exactly as broad as long, broadest in front, slightly narrowing behind eyes, sides almost parallel to that point, occiput widely concave. Eyes of moderate size, placed just in front of middle of sides. Mandibles with four teeth. Clypeus overhanging base of mandibles, the

Fig. 10.

*Monomorium occidaneus*, sp. n.

carinae not very distinct, the projecting portion feebly incised in centre of anterior border. Scapes fail to reach the occiput by twice their greatest width. Apical joint of club nearly twice as long as the other two together, the first joint of club is longer than broad, two-thirds as long as the second; joints 2-6 of funiculus broader than long, the seventh as broad as long.

Thorax slightly constricted in centre, very similar to that of *latinode*, Mayr, but the mesonotum forms an acute angle in front, the promesonotal suture being feeble but distinct. MesoePINOTAL suture as in *latinode*. Base of epinotum once and a half as long as declivity, the angle dividing them greater than a right angle, slightly concave, with prominent but blunt angles at the sides. First node in

profile higher than second, rounded evenly at the top, not greatly thicker at base than at apex; stem as long as the node, with a minute tooth in front below. Second thicker than first, more or less globular in appearance. From above, the nodes are equally broad, the first and second as broad as long, the anterior and posterior borders almost straight and parallel. Second node somewhat broader than long, convex behind, straight in front. Base of gaster concave.

Shining; mandibles with a few punctures, clypeus with a few longitudinal lines, frontal area with a few striæ, which continue up to nearly the half of the scape, spreading outwards. Antennal fossæ contain a few circular striæ. Whole of head has widely spaced distinct pits. Thorax with a few indistinct points. Base and declivity of epinotum finely transversely striate, the sides reticulate. Petiole and gaster smooth and shining.

♀. Length 3·7 mm.

Deälate. Dark castaneous brown, abdomen lighter than head and thorax; mandibles, clypeus, antennæ, and legs pale castaneous.

Pilosity sparser than in ♂.

Similar to ♂, except for size and sexual differences.

The head is as broad in front as behind, the sides feebly convex, occipital border feebly concave. Eyes large, situated as in ♂.

Base of epinotum slightly shorter than declivity, concave between the angles, which are more prominent than in the ♂. Both nodes proportionately broader and shorter than in ♂; the second below broadens out into two angles in front; the first bears a small point beneath as in the ♂. Gaster long and narrow.

Shining; striation of head similar to that of the ♂, but the longitudinal lines continue beyond and spread out over the ocelli, leaving a shining space each side of the frontal groove, which is well-defined. The clypeus has a few striæ on central raised portion. The thorax has more abundant punctures than in the ♂, and the sides of the petiole and nodes are reticulate-striate. Epinotum transversely striate.

Swan River, W. Australia (*Clark*, no. 95).

Types W. C. C. coll.

[To be continued.]